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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/857,209	06/22/2001	Yuko Tachibana	209663USPCT	6187
22850	7590	08/19/2004		
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
			EXAMINER PIZIALI, ANDREW T	
			ART UNIT 1771	PAPER NUMBER

DATE MAILED: 08/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/857,209

Applicant(s)

TACHIBANA ET AL.

Examiner

Andrew T Piziali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 2,4,6-9,11,13-15 and 22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2,4,6-9,11,13-15 and 22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I, Species 2, Subspecies A, and Group II, Species 1, in the reply filed on 10/29/2003, is acknowledged. The traversal is on the grounds that the examiner has not made out a case of lack of unity of invention.

This is not found persuasive because the species do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical feature for the following reason: In the amendment filed 7/24/2003 the applicant showed that at least one Markush alternative is not novel over the prior art by amending the Markush Group to overcome the prior art teaching of a laminate comprising an interlayer of silicon oxide or aluminum oxide. MPEP 1850(D) states "When dealing with alternatives, if it can be shown that at least one Markush alternative is not novel over the prior art, the question of unity of invention shall be reconsidered by the examiner." Therefore, upon reconsideration, it is the position of the examiner that since at least one alternative is not novel over the prior art the species lack the same or corresponding special technical feature. The requirement is still deemed proper and is therefore made FINAL..

The requirement is still deemed proper and is therefore made FINAL.

### ***Response to Amendment***

2. The amendment filed on 10/29/2003 has been entered. The examiner has withdrawn the 35 USC 112 rejections of claims 17-21 based on the cancellation of claims 17-21. The examiner has withdrawn the 35 USC 102 and/or 35 USC 103 rejections of claims 12, 16-21 and 23-30 based on the cancellation of claims 12, 16-21 and 23-30.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 2, 4, 6-9, 11, 13 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by USPN 6,045,896 to Boire et al. (hereinafter referred to as Boire).

Regarding claims 2, 4, 6-9, 11, 13 and 15, Boire discloses a laminate comprising a substrate (1), a first barrier layer (2a), a first stabilizing zinc oxide layer (2b), a first silver layer (3), a second barrier layer (5a), a second stabilizing zinc oxide layer (5b), a second silver layer (6), an absorbing layer (8a), and a third barrier layer (8b) (see entire document including Figure 1).

Boire discloses that the tin oxide barrier layer (2a) may be substituted with a barrier layer of silicon nitride (column 8, lines 9-12). Boire also discloses that any of the barrier layers may comprise a single layer of silicon nitride or a multilayer comprising a layer of silicon nitride surmounted by a layer of titanium dioxide (column 5, lines 27-31 and column 7, lines 19-27). Therefore, Boire discloses a laminate comprising a substrate (1), a first barrier layer comprising a layer of silicon nitride surmounted by a layer of titanium dioxide (2a), a first stabilizing zinc oxide layer (2b), a first silver layer (3), a second barrier layer comprising a layer of silicon nitride surmounted by a layer of titanium dioxide (5a), a second stabilizing zinc oxide layer (5b), a second silver layer (6),

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an absorbing layer (8a), and a third barrier layer comprising a layer of silicon nitride surmounted by a layer of titanium dioxide (8b).

Regarding claim 2, Boire does not mention the specific refractive index of titanium dioxide layers, but considering that the applicant's specification discloses that titanium oxide alone (titanium dioxide) may be used for the titanium oxide layers (page 10, lines 7-14), the titanium dioxide layers of Boire appear to possess a refractive index of at least 2.4 at a wavelength of 550nm.

The Patent and Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977).

Regarding claim 4, Boire discloses that the thickness of the silicon nitride barrier layers may be from 0.1 to 30 nm (column 5, lines 38-41 and column 7, lines 19-52).

Regarding claims 6 and 9, Boire does not give the specific sheet resistance value, visible light transmittance and the visible light reflectance for every conceivable article structure disclosed by Boire, but considering the substantially identical article disclosed by Boire, compared to applicant's claimed article, it appears that the article disclosed by Boire possesses the claimed properties.

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Regarding claim 7, Boire discloses that the laminate may have a layer of PET laminated thereon (column 8, lines 47-64).

Regarding claim 8, Boire discloses that the laminate may have a layer of resin having near-infrared shielding properties laminated thereon (column 8, lines 47-64).

Regarding claim 13, Boire discloses that the laminate may contain at least three metal layers (paragraph bridging columns 4 and 5).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boire as applied to claims 2, 4, 6-9, 11, 13 and 15 above, and further in view of USPN 5,723,075 to Hayasaka et al. (hereinafter referred to as Hayasaka).

Hayasaka discloses a resin with a near-infrared absorbent and further discloses that the resin may be deposited on a desired substrate to endow the substrate with a near-infrared absorbing property (column 14, lines 21-35). It would have been obvious to one having ordinary skill in the art at the time the invention was made to laminate the glass article of Boire, with a layer of resin with a near-infrared absorbent, as disclosed by Hayasaka, because the resin would endow the substrate with a near-infrared absorbing property which would be desirable in applications requiring low reflectance.

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7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boire as applied to claims 2, 4, 6-9, 11, 13 and 15 above, and further in view of USPN 5,595,825 to Guiselin.

Boire does not specifically mention using at least four metal layers, but Guiselin discloses that it is known in the art that increasing the number of metal film layers in a coated article enables the solar protection to be optimized, which in turn results in a reduction of the solar factor of the article (see entire document including column 1, lines 24-32). It would have been obvious to one having ordinary skill in the art at the time the invention was made to increase the number of silver layers to at least four silver layers, as disclosed by Guiselin, because increasing the number of metal film layers in a coated article enables the solar protection to be optimized, which in turn results in a reduction of the solar factor of the pane.

8. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boire as applied to claims 2, 4, 6-9, 11, 13 and 15 above, and further in view of USPN 4,565,719 to Phillips et al. (hereinafter referred to as Phillips).

Boire does not specifically mention adding palladium to the infrared reflective silver layers, but Phillips discloses that it is known in the art to use at least one infra-red reflecting layer containing Ag as the main component and Pd, wherein the Pd content as Pd/Ag is from 0.3 to 11.1 at %, because the environmental stability and durability of the silver layer increases (see entire document including column 2, lines 3-23 and lines 47-54, column 3, lines 18-59 and column 4, lines 7-24). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the infra-red reflecting silver layers of Boire from Ag and Pd, wherein the Pd content as Pd/Ag is from

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0.3 to 11.1 at %, as disclosed by Phillips, because the environmental stability and durability of the silver layers increases.

***Response to Arguments***

9. Applicant's arguments filed 10/29/2003 have been fully considered but they are not persuasive.

The applicant asserts that Boire requires picking, choosing and combining various disclosures not directly related to each other in order to meet the terms of the present claims. The examiner respectfully disagrees. The rejections anticipated by or in view of Boire are based on disclosures within Boire that are directly related to each other. The applicant fails to show, or attempt to show, specific disclosures of Boire, relied upon for the rejections, which are not directly related to each other.

The applicant asserts that a copy of *In re Baird* was enclosed with the amendment filed on 10/29/2003 and that under the "rationale of *In re Baird*", no *prima facie* case of obviousness has been made out. The examiner contends that *In re Baird* has a plurality of teachings. It is not clear which rational of *In re Baird* the applicant is referring. Further, the amendment filed on 10/29/2003 did not include a copy of *In re Baird*, rather, a copy of *In re Arkley* was received.

The applicant asserts that based on the disclosure at column 8, lines 9-12, it appears that the tin oxide of layer (2a) is intended to play the same role as silicon nitride. The examiner agrees. The tin oxide layer is a barrier layer. Boire discloses that the tin oxide barrier layer (2a) may be substituted with a barrier layer of silicon nitride (column 8, lines 9-12).



The applicant asserts that there is no first barrier layer comprising silicon nitride between layers (2a) and (2b) in Figure 1. The examiner agrees. Boire discloses that the tin oxide barrier layer (2a) may be substituted with a barrier layer of silicon nitride (column 8, lines 9-12). Boire also discloses that any of the barrier layers may comprise a single layer of silicon nitride or a multilayer comprising a layer of silicon nitride surmounted by a layer of titanium dioxide (column 5, lines 27-31 and column 7, lines 19-27). Therefore layer (2a) can be a multilayer comprising a layer of silicon nitride surmounted by a layer of titanium dioxide.

The applicant asserts that without the present disclosure as a guide, one skilled in the art would not have combined Boire and Hayasaka. The examiner respectfully disagrees. Hayasaka discloses a resin with a near-infrared absorbent and further discloses that the resin may be deposited on a desired substrate to endow the substrate with a near-infrared absorbing property (column 14, lines 21-35). It would have been obvious to one having ordinary skill in the art at the time the invention was made to laminate the glass article of Boire, with a layer of resin with a near-infrared absorbent, as disclosed by Hayasaka, because the resin would endow the substrate with a near-infrared absorbing property which would be desirable in applications requiring low reflectance.

The applicant asserts that Guiselin teaches away from the addition of further metal layers because the invention of Guiselin includes only three layers having infrared reflection properties. The examiner respectfully disagrees. Although Boire does not specifically mention using at least four metal layers, Guiselin discloses that it is known in the art that increasing the number of metal film layers in a coated article enables the solar protection to be optimized, which in turn results in a reduction of the solar factor of the

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article (see entire document including column 1, lines 24-32). It would have been obvious to one having ordinary skill in the art at the time the invention was made to increase the number of silver layers to at least four silver layers, as disclosed by Guiselin, because increasing the number of metal film layers in a coated article enables the solar protection to be optimized, which in turn results in a reduction of the solar factor of the pane.

The applicant asserts that one skilled in the art would not employ a silver-palladium alloy as the functional layer(s) of Boire without establishing that degradation upon heat treatment would manifest itself when the functional layer is a silver-palladium alloy. The examiner respectfully disagrees. Although Boire does not specifically mention adding palladium to the infrared reflective silver layers, Phillips discloses that it is known in the art to use at least one infra-red reflecting layer containing Ag as the main component and Pd, wherein the Pd content as Pd/Ag is from 0.3 to 11.1 at %, because the environmental stability and durability of the silver layer increases (see entire document including column 2, lines 3-23 and lines 47-54, column 3, lines 18-59 and column 4, lines 7-24). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the infra-red reflecting silver layers of Boire from Ag and Pd, wherein the Pd content as Pd/Ag is from 0.3 to 11.1 at %, as disclosed by Phillips, because the environmental stability and durability of the silver layers increases.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T Piziali whose telephone number is (571) 272-1541. The examiner can normally be reached on Monday-Friday (8:00-4:30).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

atp

*g7B 8/13/04*  
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PATENT EXAMINER

*Elizabeth M. Cole*  
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PRIMARY EXAMINER